

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless Confirm. No. 6905

Communication Devices And Methods Therefor"

Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West

Art Unit 2682

Allowability of Claims Over Nuefeld

Claims 1-14 stand rejected under 35 USC 102(e) as being anticipated by U.S. Patent No. 6,278,703 (Nuefeld). Office Action, 14 January 2004. The Examiner maintains the rejection stated in the Office Action of 9 July 2003, para. 2.

Summary of Nuefeld

Nuefeld discloses improving handoff performance by increasing the number of active and neighbor signal searches performed during active RF power periods. Nuefeld defers processing of some or all signal search results until after the RF power period has ended to provide additional processing resources required for performing the increased number of signal searches. Nuefeld, col. 5, line 61 - col. 6, line 8; col. 7, line 3; and col. 8, lines 17-26. This is also illustrated graphically in Nuefeld by comparison of FIGS. 4 and 6A, wherein elimination of the signal-processing ("CPU") interval from each period of FIG. 4 permits additional neighbor signal acquisitions, as illustrated in FIG 6A.

Discussion of Patentability of Independent Claim 1

Regarding Claim 1, contrary to the Examiner's assertion, Nuefeld does not disclose a method in a mobile wireless communication device, comprising

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

receiving present paging information;
performing present signal measurements while receiving
the present paging information;
performing present reselection processing on prior signal
measurements while performing present signal measurements.

Claim 1 covers the overlapping signal measurement and
processing illustrated in exemplary FIG. 4 of the instant patent application. In
Claim 1, at least some of the reselection processing occurs while performing
signal measurements, i.e., while the radio is energized.

As noted, Nuefeld defers processing of some or all neighbor signal
measurements until after the RF power period has ended. In the invention of
Claim 1, "reselection processing [occurs] while performing signal
measurements" (i.e., during the RF power period). Moreover, according to
Claim 1, reselection processing during a particular power period is based on
signal measurements made during an earlier RF power period, e.g., the
processing of signal measurements lags the RF power period during which the
measurements were made.

The passage of Nuefeld referenced by the Examiner discusses the
reduction of processor overhead by eliminating context switching, i.e., the
switching of data associated with different processing tasks in and out of
processor memory, e.g., registers, cache, etc., by performing any signal
processing after completion of the paging task or by using a DMA controller.
Nuefeld, col. 7, lines 23-58. Nuefeld also discloses increasing the number of
neighbor signal searches during the RF power period by reducing (based on
multi-path delay time information) the search window for each signal.

Claim 1 and the claims that depend therefrom are thus patentably
distinguished over Nuefeld.

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

Discussion of Patentability of Claim 2

Regarding Claim 2, contrary to the Examiner's assertion, Nuefeld
does not disclose

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... performing the prior signal measurements while receiving
prior paging information before receiving the present paging
information

10 in combination with the limitations of Claim 1. In Claims 1 & 2, current
processing is performed on signal measurements obtained in a prior
measurement period. Claims 1 and 2 cover the process exemplified in FIG. 2
wherein measurements made at (230) are processed at (252) while new
measurements are made at (240). Claim 2 is thus further patentably
15 distinguished over Nuefeld.

Discussion of Patentability of Claim 3

20 Regarding Claim 3, contrary to the Examiner's assertion, Nuefeld
does not disclose

25 ... reducing power consumption by performing the present
reselection processing on the prior signal measurements while
receiving the present paging information, performing the prior
signal measurements while receiving prior paging information
before receiving the present paging information"

in combination with the limitations of Claim 1 and any intervening claims.
Nuefeld does not perform reselection processing on prior signal measurements

BRANDT ET AL.
"Reselection Optimization in Mobile Wireless Confirm. No. 6905
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

while obtaining present signal measurements. Claim 3 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 4

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Regarding Claim 4, contrary to the Examiner's assertion, Nuefeld does not disclose

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... reducing power consumption by performing the present reselection processing, based upon the prior signal measurements, and receiving the present paging information in a substantially overlapping time period

in combination with the limitations of Claim 1 and any intervening claims.

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Claim 4 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 5

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Regarding Claim 5, contrary to the Examiner's assertion, Nuefeld does not disclose

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... entering a minimal power consumption mode while not receiving paging information and not performing signal measurements and not performing reselection processing

in combination with the limitations of Claim 1. Nuefeld discloses at least some of signal processing occurs after the RF power period (when not performing signal measurements), and thus Nuefeld cannot enter minimal power

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

consumption mode while not performing signal measurements. Claim 5 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 6

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Regarding Claim 6, contrary to the Examiner's assertion, Nuefeld does not disclose

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... maximizing minimal power consumption mode operation by performing the reselection processing while substantially concurrently receiving the paging information

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in combination with the limitations of Claim 1 and any intervening claims. Nuefeld discloses the performance of signal processing after performing signal measurements, and thus Nuefeld cannot enter minimal power consumption mode while not performing signal measurements. Claim 6 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 7

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Regarding Claim 7, contrary to the Examiner's assertion, Nuefeld does not disclose

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... receiving present paging information, performing present signal measurements, and performing reselection processing while operating the wireless communication device in idle mode

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

in combination with the limitations of Claim 1 and any intervening claims.
Claim 7 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Independent Claim 8

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Regarding Claim 8, contrary to the Examiner's assertion, Nuefeld does not disclose a "... method in a mobile wireless communication device that receives paging information and performs neighbor signal measurements, comprising"

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receiving present paging information;
performing present signal measurements while receiving
the present paging information;
performing reselection processing while receiving present
paging information;
reducing power consumption by performing the reselection
processing on prior signal measurements performed while
receiving prior paging information.

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As noted above, Nuefeld discloses processing signal search results (neighbor cell signal measurements) after the RF power period has ended. Nuefeld, col. 6, lines 50-54, col. 8, lines 17-40. Also, Nuefeld concedes that postponing processing until after the RF power period increases power consumption, but contends that any increase in power consumption will be offset by power savings resulting from the avoidance of link maintenance conditions (RF activation for the sole purpose of obtaining signal measurements). Nuefeld, col. 8, lines 51-57. Claim 8 and the claims that depend therefrom are thus patentably distinguished over Nuefeld.

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BRANDT ET AL.
"Reselection Optimization in Mobile Wireless Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

Discussion of Patentability of Claim 9

Regarding Claim 9, contrary to the Examiner's assertion, Nuefeld does not disclose

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... entering a minimal power consumption mode when not receiving paging information and not performing signal measurements and not performing reselection processing

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in combination with the limitations of Claim 8. Nuefeld discloses the performance of signal processing after the RF power period during which signal measurements are made has ended, and thus Nuefeld does not and cannot enter minimal power consumption mode while not performing signal measurements. Claim 9 is thus further patentably distinguished over Nuefeld.

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Discussion of Patentability of Claim 10

Regarding Claim 10, contrary to the Examiner's assertion, Nuefeld does not disclose

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... maximizing minimal power consumption mode operation by performing the reselection processing while substantially concurrently receiving the paging information

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in combination with the limitations of Claim 8. Nuefeld discloses the performance of signal processing after the RF power period has ended, and thus Nuefeld cannot meet the limitations of Claim 10. Claim 10 is thus further patentably distinguished over Nuefeld.

BRANDT ET AL.
"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

Discussion of Patentability of Claim 11

Regarding Claim 11, contrary to the Examiner's assertion, Nuefeld does not disclose

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... receiving present paging information, performing present signal measurements, and performing reselection processing while operating the wireless communication device in idle mode

10 in combination with the limitations of Claim 8 and any intervening claims. Claim 11 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Independent Claim 12

15 Regarding Claim 12, contrary to the Examiner's assertion, Nuefeld does not disclose a

20 ... method in a wireless communication device, comprising:
receiving periodic paging information;
performing periodic signal measurements;
performing periodic reselection processing;
reducing power consumption by receiving at least a portion
of the periodic paging information concurrently with performing
at least a portion of the periodic signal measurements and
25 performing at least a portion of the periodic reselection processing.

Nuefeld does not and cannot meet the "concurrently" limitations of Claim 12, since Nuefeld performs signal processing after the RF power

BRANDT ET AL.
"Reselection Optimization in Mobile Wireless Confirm. No. 6905
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

period, i.e., after the obtaining signal measurements. Claim 12 is thus patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 13

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Regarding Claim 13, contrary to the Examiner's assertion, Nuefeld does not disclose

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... performing present reselection processing on prior signal measurements while performing present signal measurements

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in combination with the limitations of Claim 12. As noted, Nuefeld does not perform reselection processing on prior signal measurements at the same time present signal measurements are obtained. Claim 13 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 14

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Regarding Claim 14, contrary to the Examiner's assertion, Nuefeld does not disclose

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... operating in a minimal power consumption mode when not receiving periodic paging information and not performing periodic signal measurements and not performing periodic reselection processing

in combination with the limitations of Claim 12. Nuefeld discloses the performance of signal processing after the RF power period during which

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

signal measurements are obtained, and thus Nuefeld cannot enter minimal power consumption mode while not performing signal measurements. Claim 14 is thus further patentably distinguished over Nuefeld.

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Allowability of Claims Over Nuefeld & Wang

Claims 15-20 stand rejected under 35 USC 103(a) as being unpatentable over Nuefeld in view of U.S. Patent No. 6,480,504 (Wang).
10 Official Action, 9 July 2003, para. 4. The Examiner concedes that Nuefeld does not disclose TDMA but relies upon Wang to satisfy the TDMA limitations.

Discussion of Patentability of Independent Claim 15

15 Regarding Claim 15, contrary to the Examiner's assertion, Nuefeld does not disclose a

20 ... method in a TDMA wireless communication device that receives periodic paging blocks and performs periodic neighbor signal measurements, comprising:
 receiving a present paging block;
 performing present neighbor cell signal strength measurements while receiving the present paging block;
25 performing reselection processing for prior neighbor cell signal strength measurements while receiving the present paging block and performing the present neighbor cell signal strength measurements.

30 Nuefeld defers processing of some or all neighbor signal measurements until after the RF power period has ended. In Claim 15, "prior

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

neighbor cell signal strength measurements" are processed while receiving present paging information, i.e., during the RF power period. Nuefeld performs processing on present signal measurements after the RF power period has ended. Wang is not relied upon to meet any other than the TDMA
5 limitations. Claim 15 and the claims that depend therefrom are thus patentably distinguished over Nuefeld and Wang.

Discussion of Patentability of Claim 16

10 Regarding Claim 16, contrary to the Examiner's assertion, Nuefeld does not disclose

15 ... reducing power consumption by operating in a minimal power consumption mode when not receiving periodic paging blocks and not performing periodic neighbor cell signal strength measurements and not performing reselection processing

20 in combination with the limitations of Claim 15. Nuefeld does not perform reselection processing on prior signal measurements while obtaining present signal measurements. Claim 16 is thus further patentably distinguished over Nuefeld and Wang.

Discussion of Patentability of Claim 17

25 Regarding Claim 17, contrary to the Examiner's assertion, Nuefeld does not disclose

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless
Communication Devices And Methods Therefor"
Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West
Art Unit 2682

5 ... reducing power consumption by receiving at least a portion of the periodic paging blocks, performing at least a portion of the periodic neighbor cell signal strength measurements, and performing at least a portion of the reselection processing concurrently

10 in combination with the limitations of Claim 15 and any intervening claims. Nuefeld does not perform reselection processing while obtaining present signal measurements. Nuefeld processes the signal measurements after obtaining the signal measurements. Claim 17 is thus further patentably distinguished over Nuefeld and Wang.

Discussion of Patentability of Independent Claim 18

15 Regarding Claim 18, contrary to the Examiner's assertion, Nuefeld does not disclose a

20 ... method in a WCDMA wireless communication device that receives periodic paging indicator channel blocks and performs periodic reselection processing, comprising:
... receiving a present paging indicator channel block;
performing present signal measurements while receiving the present paging indicator channel block;
25 performing reselection processing for prior signal measurements while receiving the present paging indicator channel block and performing the present signal measurements.

30 Nuefeld defers processing of some or all neighbor signal measurements until after the RF power period has ended. In Claim 18, "prior signal measurements" are processed while receiving present paging

BRANDT ET AL.

"Reselection Optimization in Mobile Wireless Confirm. No. 6905

Communication Devices And Methods Therefor"

Atty. Docket No. CS20456RL

Appl. No. 10/074,970

Examiner L. West

Art Unit 2682

information, i.e. during the RF power period. Claim 18 and the claims that depend therefrom are thus patentably distinguished over Nuefeld and Wang.

Discussion of Patentability of Claim 19

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Regarding Claim 19, contrary to the Examiner's assertion, Nuefeld does not disclose

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... reducing power consumption by operating in a minimal power consumption mode when not receiving periodic paging indicator blocks and when not performing periodic signal measurements and not performing reselection processing

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in combination with the limitations of Claim 19. Nuefeld does not perform reselection processing on prior signal measurements while obtaining present signal measurements. Claim 19 is thus further patentably distinguished over Nuefeld.

Discussion of Patentability of Claim 20

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Regarding Claim 20, contrary to the Examiner's assertion, Nuefeld does not disclose

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... performing signal measurements between receiving periodic paging indicator blocks when the period between the periodic paging indicator blocks is greater than a predetermined period

in combination with the limitations of Claim 15 and any intervening claims. Nuefeld does not perform reselection processing while obtaining present